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ABSTRACT

The purpose of this paper is to provide a comparison of four studies regarding administrators' needs and perceptions related to technology in education. A synopsis of educational technology standards that have been applied to students, teachers, and administrators in the Commonwealth of Virginia and standards being considered by the Southern Regional Education Board are also used to inform general recommendations for administrators' technology training needs. Recommendations are presented in three main categories: understanding technology management issues; impact of technology on educational change; and administrative uses of technology. (Author/AEF)

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Perceptions and Educational Technology Needs of School Administrators

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Abstract: The purpose of this paper is to provide a comparison of studies regarding administrators' needs and perceptions related to technology in education. A synopsis of educational technology standards that have been applied to students, teachers, and administrators in the Commonwealth of Virginia and standards being considered by the Southern Regional Education Board are also used to inform general recommendations for administrators' technology training needs.

1. Introduction

While the need for improved technology training for teachers has seen increased attention in recent years, the training needs of pre-service and in-service school administrators has received minimal attention. Telem (1991) suggests that issues related to Instructional Technology development for school administrators have been ignored for the most part, with limited attention "in the literature, at scientific meetings, and among special interest groups in professional associations in education" (p. 595). Despite this lack of attention and training administrators are still faced with the increased responsibilities of infusing technology into the schools under their charge. "The importance of technology and computers has increased tremendously in the last few years as superintendents are pressured to purchase the latest equipment, hire computer coordinators, train teachers to use the equipment, and connect everything to the network" (Sharp & Walter, 1997, p.8). If administrators are to successfully fulfill these tasks instructional technology must "become an integral part of the curriculum of universities and other institutions preparing school administrators" (Telem, 1991, p. 605). With training there is the possibility of "using [Instructional Technology] as an aggressive educational leadership tool and a proactive management tool" (p. 605). Unfortunately, many of the technology courses that have been offered for school administrators have emphasized skills-based training. While some of these courses have been successful, many have failed to provide the comprehensive experience that administrators need.

2. Needs and Perceptions

Studies have indicated that knowledgeable school administrators contribute significantly to the proper integration of technology (Beach & Vacca, 1985). Technology training for instructional leaders is vital (Bruder, 1990) to the successful infusion of technology into the daily instructional and administrative routine of our public schools.

> Principals...must have a solid 'base of knowledge' to draw on, whether they're setting budgets and standards for their schools, implementing system-wide

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> technology plans - or, just trying to keep pace with staff and students (Rockman & Sloan, 1993, p. 2).

Through informal discussions with fellow administrators Brooks (1997) found that the majority were concerned with the acquisition of technology rather than what would take place after the technology arrived. She suggests that principals need the knowledge to make more informed budgeting decisions that include a stronger emphasis on providing professional development opportunities for teachers. Staff development has been identified by many studies as a key component to the successful implementation of technology (Costello, 1997). Brooks believes that both teachers and administrators need to realize that the successful implementation of technology into instruction will require changes in instructional approaches as teachers become facilitators of learning rather than distributors of knowledge.

Administrators, as instructional leaders, "need to develop the understanding necessary to guide their instructional technology programs and to have the hands-on experiences that training on administrative uses of technology provides" (Beaver, 1991, p. 1). Beaver used mailed surveys to gather information from building, district, and state level administrators regarding their technology competence. While 70% of respondents indicated the importance of computer use to their success on the job, 73% indicated having little or no technological competence. Additionally, 77% reported that they had not participated in technology training. These results informed his recommendations for elements to be included in a technology course for administrators. Beaver suggests practical applications of productivity tools, group discussions of relevant technology issues, and individual and group projects that allow participants to develop skills that meet their needs and interests.

> Without the hands-on experience, discussions become remote, second-hand experiences. Without the discussions, the hands-on experiences degenerate to software training workshops. Without the discussions and hands-on workshops, the project presentations become 'Show-And-Tell' sessions. Together, the three components provide a solid foundation for an administrative computer leadership capable of guiding us steadily into the next decade (p.13).

Beach and Vacca (1985) suggest that as technology leaders administrators will deal with "effective methods of implementing micro-computer-based instructional programs" (p. 31). The purpose of their study was to identify the role of administrators in the implementation of technology in high schools identified by the Southern Association of Colleges and Schools as using computer technology. High school principals in six southern states responded to a demographic questionnaire and *Leader Effectiveness and Adaptability Description* survey. The demographic questions sought to determine numbers and instructional use of computers, technology planning and management, professional development for teachers, and the administrators' technological competence. Beach and Vacca found that administrators' responses to items regarding the "functional utility" of computers in education were distributed among choices of "limited", "technological fad", "vital innovation", "part of program", and "no response" (p. 36). The majority of responses indicated that computers were an important part of the school program. The *Leader Effectiveness and Adaptability Description* was used to measure administrators' leadership style. Most respondents were categorized as "High Task-High Relationship", which implies a flexible and adaptable leadership style. The authors believe that "successful implementation varies directly with the adaptability of the administrator" (p.44).

The *Technology Survey for Principals*, developed by Heaton and Washington (1998) was distributed to administrative interns as a pilot test of the instrument. The instrument was developed to determine relevant issues related to technology policy, the principal's role as a technology leader, and personal technological competence. Participants were asked to rank the relevant issues in order of their importance. Additional items were included to identify specific issues and skills related to the three ranked items. Half of the respondents ranked personal skills as most important, however, 93% of participants ranked learning to be an instructional leader as either first or second. The development and implementation of a technology plan that includes strong support for technology training related to helping teachers meet state technology standards were among the highest rated issues. Technology training for pre-service administrators should emphasize the importance of becoming a technology leader. Course content should provide an awareness of ways to encourage instructional and administrative technology use, hardware and software requirements needed to support uses of technology, and ways to support teacher participation in technology training. Technology issues related to the development and implementation of a school technology plan should be discussed throughout the course. The interest in developing personal skills should be addressed through

completion of context-based projects that allow administrators to develop skills relevant to their daily routine.

3. Comparison of Studies

The purpose, results, and recommendations discussed in section two above are outlined in Table 1.

Purpose	Results	Recommendations
To look at the administrators role in technology planning Based on informal discussions with fellow administrators Brooks (1997)	• Principals often focus on acquisition of technology • Principals have little knowledge of the technology purchased	Principals need to: • Make informed budgeting decisions • Recognize the ability of technology to change/ improve education • Play "an active role in the planning and implementation of technology" (p. 30) • Create professional development opportunities for teachers
To determine the technology competence of administrators and make recommendations regarding technology course content 59 of 75 administrators in West Central Florida completed a 36 item mailed survey Beaver (1991)	Participants reported: • Little or no technological competence • Competent computer use as important to success on the job • Little or no technology training	Administrators need: • Practical applications of productivity tools • Group discussions of relevant technology issues • Individual and group projects to develop skills that meet their needs and interests
To identify the role of administrators in the implementation of technology 231 of 309 high school principals in six southern states with an identified interest in integrating technology responded to a demographic questionnaire and *Leader Effectiveness and Adaptability Description* survey Beach & Vacca (1985)	• Computer use is an important part of the school program • Principals ranked high on the "High Task-High Relationship" leadership style • 84% of principals rated themselves as novice computer users	Administrators should be flexible and adaptable in order to successfully implement educational technology
To determine relevant issues related to technology policy, the principals role as a technology leader, and personal technological competence 14 of 16 administrative interns enrolled in a technology course at the University of Virginia completed the *Technology Survey for Principals* Heaton & Washington (1998)	• 7 of 14 (50%) ranked personal skills as most important • 6 of 14 and 7of 14 (93%) ranked learning to be an instructional leader as first or second respectively Among the topics rated as most relevant to the administrator's role: • Development and implementation of the school technology plan • Ways to support technology training for teachers • Funding and selection of hardware and software • Supporting instructional applications of technology	Administrators need training that includes: • Ways of becoming an instructional leader • Context based skills development • Discussions of relevant technology issues

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4. Technology Standards for Students, Teachers, and Administrators

In June 1995, the Virginia Board of Education approved Standards of Learning (SOL) in four core content areas - mathematics, science, English, and history and the social sciences. The standards in the core content areas include benchmarks describing the technology skills and knowledge students should acquire by the end of the 5th and 8th grades. Minimum competencies at the end of grade five include:

- knowledge of technology terminology
- keyboarding skills
- operating peripheral devices
- accessing information from electronic databases
- integrating graphics in word processed documents
- creating simple spreadsheets and databases

While the standards also require students to be able to "apply technologies to strategies for problem-solving and critical thinking," (http://www.pen.k12.va.us/go/Sols/home.shtml) they are strongly skills-based, rather than content-based competencies. By the end of the 8th grade, students are required to demonstrate the following competencies:

- composing and editing a multi-page document
- communicating with spreadsheets by entering data and setting up formulas
- analyzing data and creating graphs or charts to visually represent data
- communicating with databases by defining fields and entering data, sorting and producing reports in various forms
- using advanced publishing software, graphics programs, and scanners to produce page layouts
- integrating databases, graphics, and spreadsheets into word-processed documents

Additionally, students should be proficient in communicating via e-mail and creating web pages. In the spring of 1997, the state began administering stand-alone technology tests corresponding to the standards.

In September 1995 the Board of Education requested that ABTEL (Advisory Board on Teacher Education and Licensure) "examine the issue of technology proficiencies as a requirement for licensure for instructional personnel" (http://www.pen.k12.va.us/go/VDOE/Compliance/TeacherED/tech.html). Instructional personnel refers to all school personnel required to hold a license issued by the Virginia Board of Education for instructional purposes. A task force was organized to make recommendations regarding technology proficiency for licensure to ABTEL. The proposed and adopted recommendations are referred to by the Board of Education as "Technology Standards for Instructional Personnel." Local school divisions and institutions of higher education are expected to develop plans to implement and assess these standards by December 1998.

Technology Standards for Instructional Personnel require teachers to demonstrate competency in the following areas:

- operating a variety of computer systems and accompanying peripheral devices, utilizing instructional, application tools, productivity, and courseware software programs, and troubleshooting general hardware and software problems
- applying knowledge of educational computing and technology terminology
- using software tools to assist with administrative tasks, development of instructional materials, correspond with students and parents
- using telecommunications software
- incorporating word processing, spreadsheet, or database software in instruction
- using presentation and/or authoring software
- using computers, modems, networks, printers, large- group presentation devices, scanners, digital cameras, camcorders, video cassette recorders, optical disc players, etc.
- using educational technologies for data collection, information management, problem-solving, decision making, communications, and presentations within the curriculum.
- using multimedia, hypermedia, and telecommunications software to support individual and/or small group instruction; as teaching assignments dictate
- abiding by copyright laws, practice responsible uses of technology

In the fall of 1998, the Southern Regional Education Board proposed "Technology Standards for School Administrators." Several key areas of technology competence were identified as being crucial to administrators' ability to take a leadership role in the creation of technology related programs. The proposed standards include the administrators' ability to:

- understand the elements and characteristics of long-range planning for the use of current and emerging technology
- demonstrate ability to analyze and react to technology issues, concepts, and proposals
- possess a "big picture" vision of technology in education and schools
- use technology to efficiently communicate with stakeholders
- use technology to collect and analyze data and other information to improved decision making and other management functions
- understand how current and available technologies can be effectively integrated into all aspects of the teaching and learning process
- understand the legal and ethical issues related to technology licensing and usage

5. Recommendations Regarding Administrators' Technology Needs

The suggestions provided by the review of research and the technology standards discussed in section three of this paper are intended to guide the development of general recommendations for technology training for administrators. The recommendations are divided into three main sections including: understanding technology management issues, the impact of technology on educational change, and administrative uses of technology, however, they are not intended to be an exhaustive list of administrators' technology needs. Highlights of each section are as follows:

- Understanding technology management issues
  - providing proper funding for training and support
  - managing software and hardware acquisition and upgrades
  - technology planning
  - budgeting for technology training and support
  - knowing technology standards for students and instructional personnel
  - participating in the development and implementation of the school/district technology plan
  - developing personal and staff development programs
  - comprehending ethical and legal issues related to technology use
- Impact of technology on educational change
  - create a supportive environment for change
  - support changes in instruction that encourage teachers to become facilitators of learning
  - learn ways to encourage students to take a more active role in their own learning
  - develop long range plans that adapt the vision/mission of the school to include the infusion of technology across the curriculum
- Administrative uses of technology
  - learning ways to communicate with students, teachers, and parents
  - analyzing and organizing data to make informed decisions
  - encouraging teachers' administrative use of technology
  - utilizing Internet resources for personal professional development
  - staying abreast of current literature in instructional technology and related fields

"If we expect our administrators to provide the vision and understanding needed to guide the development of instructional computing programs, we must encourage them to increase their computer competence" (Beaver, 1991, p.4). Training for administrators must include a comprehensive experience with practical applications as well as discussions of pertinent issues related to the implementation and support of technology. Such training will encourage maximum integration of technology into the daily performance of administrators.

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